Remarks

Claims 1-32 were pending in the above-identified application. By way of the present amendment, Applicants have cancelled claims 3 and 25-32, and have amended claims 1 and 4. Claims 1, 2, and 4-24 are therefore currently pending and under examination. Applicants respectfully request reconsideration and allowance of the pending claims in view of the amendments and the remarks provided herein.

Claim Rejections under 35 U.S.C. §102(b)

The Examiner has rejected claims 1, 5, 7 and 8 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,925,395 (Chen). Applicants have amended claim 1 to include the limitations of claim 3, and respectfully request that the rejection of claims 1, 5, 7, and 8 as being anticipated by Chen be withdrawn.

Claim Rejections under 35 U.S.C. §103

All of the remaining claims (*i.e.*, claims 2-4, 6, and 9-24) were rejected under 35 U.S.C. §103 as being obvious over Chen either alone or in combination with various additional references. Applicants respectfully traverse the rejections. Regardless, in the interest of furthering prosecution, Applicants have amended claim 1 to recite the elements formerly present in claim 3, which has been cancelled as a result. Accordingly, Applicants address the rejection of claims 4 and 4, which is now relevant to all of claims 1-10.

Chen does not disclose the use of magnesium ions. However, for claims 3 and 4, the Examiner has cited Hekal *et al.* for disclosing the use of magnesium ions in a food preservative solution, and Gillota for providing a weight ratio of calcium to magnesium of between 5:1 and 15:1.

Gillota is directed to the use of magnesium in an energy drink formulation. Chen, on the other hand, describes preserving fresh and cut vegetables, while Hekal *et al.* describes preserving

fresh produce. In both Chen and Hekal *et al.*, significant consideration is given to the advantages of the composition for preserving texture and firmness, which is relevant for preserving freshly cut produce, but not particularly relevant for energy drinks. Furthermore, the advantage of the energy drinks described by Gillota, which are mixtures of glucose, amino acids, and various vitamins, is their nutritive effects. Likewise, magnesium is described, not for use as a preservative, but rather for its nutritive effects as well. See paragraphs [0151] to [0161] of Gillota. Since Gillota is interested in magnesium as a nutrient rather than as a preservative, it is non-analogous art in relation to Chen and Hekal *et al.*, and would not be combined by one skilled in the art to provide the presently claimed composition.

Hekal *et al.*, which has the same assignee as Chen, is directed to the use of alternatives to calcium ions for preserving fresh produce, and recites the use of various non-calcium cations such as magnesium, zinc, and tin. However, neither Hekal *et al.* or Chen provide any reason for using a mixture of magnesium and calcium ions, since the functions for these cations, as described in these references, are redundant. Only the present application provides a motivation to include both magnesium and calcium, based on the ability of magnesium ions to "preserve the brightness and brilliance of the surfaces of apple pieces" (paragraph [0044]).

Accordingly, for the reasons provided above, Applicants respectfully request that the rejection of claims 3 and 4 over Chen in combination with Gillota and Hekal *et al.* under 35 U.S.C. 103 be withdrawn. Furthermore, because the elements of claim 3 have been incorporated into claim 1, from which claims 2 and 4-10 depend, Applicants respectfully request that the rejection of claims 1-2 and 4-10 under 35 U.S.C. §103 be withdrawn as well.

The Examiner has also asserted that claims 11 and 12 are obvious. More specifically, the examiner has asserted that because the compositional proportions taught by Chen overlap the claimed proportions, a *prima facie* case of obviousness has been established. Applicants respectfully traverse the rejection.

The Federal Circuit recently reiterated in Iron Grip Barbell Co., Inc. v. York Barbell Co., Inc., 392 F.3d 1317 (Fed. Cir. 2004) that an invention is not *per se* obvious simply because it

falls within a range disclosed by the prior art, but rather that a presumption of obviousness applies in such cases that can be rebutted by, for example, demonstrating unexpected results or that the prior art teaches away. See In re Geisler, 116 F.3d 1465, 1471 (Fed. Cir. 1997). Furthermore, in the case of overlapping ranges, the burden merely shifts to the applicant to show that the claimed ranges or proportions impart more than a difference in degree to make the invention as a whole separately patentable over the prior art. See In re Wertheim, 541 F.2d 257 (CCPA 1976) at 267. Finally, Applicants note that "the principle applies most often to the less predictable fields, such as chemistry, where minor changes in a product or process may yield substantially different results." *In re* Mayne, 104 F.3d 1339, 1343 (Fed. Cir. 1997), quoting *In re* Soni, 54 F.3d 746, 750, 34 U.S.P.Q.2d 1684, 1687 (Fed. Cir. 1995).

Applicants respectfully submit that the ranges of claim 11 provide unexpected results and import more than a difference in degree from the various ranges described in Chen, and therefore are patentable over the prior art. At the outset, Applicants note that multiple ranges are at issue, and that none of the ranges described in Chen directly match those that are presently claimed. For example, for ascorbic acid, the claimed range is from 5 to 9%, whereas Chen describes a range of from 0.5 to 15%.. For calcium ion, the claimed range is from 0.4 to 0.68%, whereas Chen describes a range from 0.6 to 5%. Finally, for the ascorbic acid to calcium ion ratio, the claimed range is from 2.8:1 to 4.0:1, whereas the closest range in Chen is for 0.5:1 to 4:1. In addition, none of the ranges described above for Chen are the preferred ranges or are provided in any of the examples. Taken together, these facts all tend to indicate that the presently claimed ranges are not obvious in view of the numerous ranges provided in Chen.

More importantly, the currently claimed ranges provide two significant benefits that are not provided by the ranges described in Chen. First, as noted in paragraph [0043] of the published specification, high levels of calcium can impart a salty or bitter taste. The closest range in Chen for calcium describes a range that extends up to 5%, which is significantly higher than the 0.68% specified as the most allowed in the current claims. Furthermore, Chen also teaches additional ranges for calcium that extend all the way to a fully saturated solution. Chen

therefore does not teach one to avoid high concentrations of calcium that can lead to a bitter or salty taste. Because the claimed ranges provide a qualitatively different effect, this represents a difference of kind rather than a difference of degree, and therefore renders the presently claimed range unobvious in view of Chen.

Furthermore, the present specification indicates that high levels of ascorbic acid (5.6 to 9% (w/v)) are beneficial for the rapid transport of sufficient amounts of ascorbic acid into the apple pieces, and for the effective chelation of calcium ions. See from paragraphs [0032] to [0035] of the published specification. However, the closest range provided in Chen indicates that a range of 0.5 to 15% of ascorbic acid can be used, while broader ranges indicating that as little as 0% ascorbic acid can be used. Accordingly, Chen et al. teaches many levels of ascorbic acid that may be insufficient to provide the rapid penetration and calcium ion chelation described for the presently claimed ranges, and the advantages associated therewith, as described by Applicants. This is therefore another qualitative, unexpected difference between the presently claimed composition and that taught by Chen.

Because of the qualitative and unexpected differences provided by the ranges of ascorbic acid and calcium recited in claim 11, Applicants respectfully request that the rejection of claim 11, and the claims dependent therefrom (*i.e.*, claims 12-20) under 35 U.S.C. 103(a) as being obvious in view of Chen be withdrawn.

Claims 13 and 14 were rejected under 35 U.S.C. 103(a) as being obvious over Chen in view of Hekal *et al.* Applicants respectfully traverse the rejection. In addition to reasons provided above, claims 13 and 14 are not obvious because neither Hekal *et al.* nor Chen suggest any reason why magnesium and calcium should be used together, whereas the present applicant teaches that in the claimed range, the use of magnesium will contribute to the "brightness and brilliance of the surfaces of apple pieces" (paragraph [0044]). Furthermore, the claimed concentrations do not fall within the ranges preferred in Hekal *et al.*, but rather fall at the fringe of the broadest range claimed, which tends to further support the lack of obviousness. Applicants therefore respectfully request that the rejection of claims 13 and 14 under 35 U.S.C.

103(a) over Chen in view of Hekal *et al.* be withdrawn.

Claims 16 and 19 were rejected under 35 U.S.C. 103(a) as being obvious over Chen in view of Gawad *et al.* Applicants respectfully traverse the rejection. In addition to reasons provided above with regard to Chen, claims 16 and 19 are not obvious because the calcium chloride dihydrate in Gawad *et al.* is used in a fundamentally different type of preservative solution, *i.e.*, one based on cysteine/sorbate, and at higher concentrations (0.1 to 1% in solution, rather than 0.06 to 0.1%) than the ranges currently claimed to provide a "synergistic" combination. Due to the described synergistic interaction between the various components of Gawad *et al.*, which would be lost for the presently claimed composition, as well as the description of a range that only overlaps at a single point (a concentration of 0.1%) there is no reason that one skilled in the art would expect that calcium chloride dihydrate might be a preferred source of calcium chloride for the presently claimed invention. Accordingly, Applicants assert that it would not be obvious to one skilled in the art to modify the teachings of Chen to include calcium chloride dihydrate as described in Gawad *et al.*, and respectfully request that the rejection of claims 16 and 19 under 35 U.S.C. 103(a) over Chen in view of Gawad *et al.* be withdrawn.

Claims 21-22 were rejected under 35 U.S.C. 103(a) as being obvious over Chen in view of Gawad *et al.* and Chen (U.S. Patent No. 5,939,117). Applicants respectfully traverse the rejection. As noted above with regard to claim 11 and its dependent claims, the ranges of claim 21 again provide unexpected results and import more than a difference in degree from the various ranges described in Chen, Gawad *et al.*, or Chen ('117). As described above, there are multiple ranges, now from multiple references, and none of the ranges described for Chen are the preferred ranges or described in the examples of Chen. Furthermore, the currently claimed ranges avoid imparting a salty or bitter taste, and are beneficial for the rapid transport of sufficient amounts of ascorbic acid, both of which are unexpected and qualitative differences over the results obtained using the ranges described in the prior art. Furthermore, as also previously indicated by Applicants, Gawad *et al.* teaches away from the use of calcium chloride

dehydrate in other preservatives as a result of the synergistic benefits described in Gawad *et al.* as well as the fundamentally different nature of the preservative solution taught by Gawad *et al.* Chen ('117) does nothing to rectify these issues, but further strains the nature of the obviousness rejection by requiring one skilled in the art to consider a further reference to provide the claimed preservative solution.

Accordingly, for the reasons provided above, applicants respectfully request that the rejection of claim 21 as well the claims dependent therefrom (i.e., claims 22-24) under 35 U.S.C. 103(a) as being obvious in view of the cited references be withdrawn.

Claim 23 was rejected under 35 U.S.C. 103(a) as being obvious over Chen in view of Gawad *et al.*, Chen ('117), and Hekal *et al.* Applicants respectfully traverse the rejection. The addition of magnesium in Claim 23 is not obvious for the same reasons provided above for claims 13 and 14. Namely, the claimed concentrations fall at the fringe of the broadest range claimed in Hekal *et al.*, and neither Hekal *et al.* nor Chen suggest any reason why magnesium and calcium should be used together, whereas the present applicant teaches that in the claimed range, the use of magnesium will contribute to the "brightness and brilliance of the surfaces of apple pieces."

In view of the above-described amendments and remarks, Applicants submit that claims 1, 2, and 4-24 are in condition for allowance, and respectfully requests same. The Examiner is asked to contact the undersigned at the phone number listed below if there are any questions regarding the amendments or remarks provided herein.

Respectfully submitted,

Date: March 15, 2010

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